

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Patent Application of:  
Joachim Kiefer et al.

Application No.: 10/522,839

Confirmation No.: 4211

Filed: June 6, 2005

Art Unit: 1796

For: PROTON-CONDUCTING POLYMER  
MEMBRANE COMPRISING POLYMERS  
CONTAINING PHOSPHONIC ACID GROUPS  
AND ITS USE IN FUEL CELLS

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Examiner: H. S. Hu

**RESPONSE TO RESTRICTION REQUIREMENT**

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Madam:

In response to the restriction requirement set forth in the Office Action mailed March 25, 2009, applicant hereby provisionally elects claims 1-16 and 23 for continued examination, with traverse.

The Examiner requests that we elect one of the following inventions:

Group I, claims 1-16 and 23, drawn to a proton-conducting polymer membrane comprising polymers containing phosphonic acid functional groups.

Group II, claims 17-18, drawn to an electrode having a proton-conducting polymer coating based on polyazoles.

Group III, claims 19-21, drawn to a membrane-electrode unit (claims 19-20) and its fuel cell (claim 21).

Group IV, claim 22, drawn to a process of making proton-conducting polymer membranes comprising polymers containing phosphonic acid functional groups.

The applicant is surprised that they have received this restriction requirement. First of all, the unity of the invention has not been challenged during PCT Phase by the responsible PCT authority. Accordingly, the applicant respectfully believes since there was no lack of unity found in the PCT, the applicant believes that the USPTO should be bound to this.

Second, the Examiner's position with respect to the statement that the current set of claims do not belong to a single general inventive concept is respectfully wrong.

The instant invention is directed to a new class of proton conductive polymer membranes which are based on an aromatic tetraamino compound and polyvinylphosphonic acid (reactor blend). This is the single general inventive concept of the instant invention.

In order to practice the invention, the respective monomers, to form a polymer containing aromatic tetraamino compound and polyvinylphosphonic acid such as a polyazole polymer, are mixed in step A). The mixture in step A) further contains vinyl-phosphonic acid (as monomer for the polyvinylphosphonic acid). In step B) the polymer such as a polyazole polymer is formed by polycondensation. Thereafter, in step C) a film is casted which still contains the vinyl-phosphonic acid (as monomer for the polyvinylphosphonic acid) which is polymerized in step D). Since the two polymers are formed by different polymerization methods, they can be formed independently. Since the film still contains the vinyl-phosphonic acid (as monomer) being uniformly distributed, an Inter Penetrating Network (IPN) is formed.

Claim 1 (Group I) is directed to a proton-conductive membrane as described above, wherein the membrane is casted on a support (e.g. a carrier film) which is removed after step D). The support is required to handle the film casting.

Claim 17 (Group II) is the same material of claim 1. The only difference is that instead of a support the electrode is used as support. Hence the subject matter is not only a proton-conductive membrane, it a proton-conductive membrane/material combined with an electrode already.

Claim 19 (Group III) is the MEU containing the membrane of claim 1 or the coated electrode of claim 17.

Claim 22 (Group IV) is the process already described in the instant claim 1.

For the above reasons, the applicant believes that all independent claims are linked by the same single general inventive concept.

Since there is no prior art destroying the unity of the instant invention, the applicant see no valid reason to maintain the restriction to one of the groups.

The Commissioner may require restriction if two or more independent and distinct inventions are claimed in a single application (37 CFR 1.142(a)). In the present case, although the claimed subject matter may be classified in different classes, the inventions are not independent.

Applicants respectfully traverse the Restriction requirement because the U.S. Patent and Trademark Office has not carried forward its burden of proof to establish distinctness.

In particular, MPEP § 803 states:

If the search and examination of an entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to distinct or independent inventions.

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Docket No.: 15588-00007-US

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 15588-00007-US from which the undersigned is authorized to draw.

Dated: April 21, 2009

Respectfully submitted,

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